

## ABSTRACT

A pilot fuel nozzle configuration for use in a combustor is disclosed having a natural frequency outside the range of the operating frequencies of a gas turbine engine.

10 Multiple embodiments are disclosed for the improved pilot fuel nozzle including configurations for newly manufactured nozzles, repair to existing pilot nozzles, as well as multiple natural frequency levels for the improved pilot fuel nozzle. The pilot fuel nozzle comprises an elongated housing, first and second flanges, and a nozzle tip, with the first flange fixed to the elongated housing at a first end and the nozzle tip fixed to the second  
15 end, opposite of the first end. The second flange is fixed along the elongated housing and is used for attaching the pilot fuel nozzle to a combustor. The present invention incorporates an increased wall thickness along at least a mid-span portion of the pilot nozzle to increase the stiffness and change the natural frequency.